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From: Commanding Officer, USS DOLPHIN (AGSS-555)
To: Director of Navy History (OP-09BH), Washington, DC

Subj: COMMAND HISTORY OF USS DOLPHIN (AGSS 555) FOR CY91

Ref: (a) OPNAVINST 5750.12E

Encl: (1) Command Composition and Organization
(2) Chronology
(3) Narrative
(4) Supporting Documents

1. Per reference (a), enclosures (1) through (4) are forwarded for calendar year 1991.


C. S. ORMSON

COMMAND COMPOSITION AND ORGANIZATION

1. The USS DOLPHIN (AGSS-555) is the Navy's deep-diving research and development submarine designed to test advanced submarine structures, sensors, weapons and machinery systems. Purely experimental in nature, DOLPHIN serves as a platform for scientific research at unprecedented depths for a fully operational and independent submarine. Utilizing its large payload (over 12 metric tons) and highly versatile instrumentation suite, many civilian, public service and military activities have employed DOLPHIN for the testing of numerous technologically advanced and complex equipments.

2. DOLPHIN operates as a unit of the U.S. Submarine Force, U.S. Pacific Fleet, under Commander, Submarine Development Group ONE. The Dolphin Advisory Group of Naval Sea Systems Command in Washington, D.C. directs long range project planning and scheduling. Technical project guidance and local operational support are provided by the Dolphin Project branch of Naval Ocean Systems Center, San Diego, California, where DOLPHIN is homeported.

3. DOLPHIN is commanded by Lieutenant Commander Charles S. Ormson. For a complete biography of Lieutenant Commander Ormson see the Welcome Aboard Pamphlet in enclosure (4).

Enclosure (1)

CHRONOLOGY

07 JAN to 11 JAN: Underway period to test a temporarily installed Laser Line Scanning System (LLSS). LLSS is an advanced optical imaging system which generates visual images by scanning submerged objects with a blue-green laser. High resolution images were obtained at significantly higher altitudes than previously possible.

25 FEB: Dolphin's safety program was reviewed by personnel from the Naval Safety Center Washington D C. Many laudatory comments were received as well as an overall grade of outstanding.

07 MAR to 19 MAR: Classified 12 day CNO directed operation.

21 MAY to 29 MAY: Participated in a historic submerged experiment in which two way laser communication capability was successfully demonstrated between submarine and aircraft. The Tactical Airborne Laser Communications (TALC) system installed on board DOLPHIN is designed to provide unrestricted communications capability with submerged submarines operating at depth. All results during the test were achieved through solid cloud cover and in very turbid water. The installation represented the first ever Subsafe approval and use of a laser and optical hull penetrator in a submarine.

05 JUN to 25 JUN: Completed a scheduled upkeep/drydocking evolution aboard the SAN ONOFREE (ARD-30). Significant repairs included; Overhaul of three major hull valves, replacement of the ship's #3 Thermal Electric Air Conditioner (TEAC) with a new R-22 plant, and the complete restoration and painting of the ship's hull and superstructure. Transducer mountings were installed in preparation for upcoming project equipment installations.

14 & 15 AUG: Command Safety Stand-down. Conducted extensive crew training including various forms of "safety awareness" shipboard competitions.

29 AUG to 30 AUG: Deployed to a local deep water area and performed a "test depth" dive to clear the June upkeep hull valve departures.

16 SEP to 18 SEP: Underway with the prototype SLS-010 Side Scan Sonar system. Tests included multiple runs at low altitudes (from the ocean bottom) to digitally record high sonar stave data and examine techniques for conventional and synthetic aperture beamforming of side scan Sonar information.

Enclosure (2)

18 SEP to 19 SEP: Overnight deployment with VIP riders from Naval Sea System Command, USS Parche, and Applied Research Laboratories. DOLPHIN demonstrated a successful target search, approach and photographing exercise.

26 SEP to 27 SEP: Graded "Excellent" during an underway Navigation evaluation conducted by Submarine Development Group-ONE.

07 OCT to 11 OCT: Served as a platform for the testing and evaluation of a new Acoustic Doppler Current Profiler (ADCP) system. During the test, acoustic pulses were successfully utilized to calculate water currents and bottom velocities based on doppler shifts in the returning frequencies.

21 OCT to 31 OCT: Completed a scheduled pier-side upkeep/IMA availability.

Mon, 05 NOV: Underway with several guest riders from the research submersible NR-1, for a planned overnight at-sea demonstration of DOLPHIN's unique Obstacle Avoidance Sonar (OAS) system. Difficulties with the ship's aft blower motor forced an early return to port.

SAT, 16 NOV: Members of ship's company participated in the American Cancer Society's annual "Great American Smoke-Out" 10K Marathon - placing third overall.

19 NOV to 23 NOV: Combination ADCP/SABLE operations. DOLPHIN played the role of target during the testing of a new type of active sonar known as "SABLE". The system employs frequency dispersion to improve detection performance. The test evaluated the systems ability to detect targets in both shallow and deep water. Continued testing and calibration of installed ADCP system.

09 DEC to 13 DEC: Combination ADCP/ISE operations: Continued testing of installed ADCP system. Conducted test depth dive for pressure testing the High Pressure Drain Pump float valve.

20 DEC to 03 JAN: Holiday stand down period.

NARRATIVE

1. During 1991, DOLPHIN's special project deployments have been broad-based and far reaching. DOLPHIN has been most successful in its role as dedicated platform for the development of scientific concepts and testing of advanced, "new generation" Sonar and Navigation suites.

2. Throughout the year, significant material upgrades have been accomplished. Final installation of the Integrated Sensor Information System (ISIS) was completed and operationally tested. Repairs were accomplished to #3 SSMG, providing triple redundancy for production of primary A.C. power. The Wide Area Imaging System (WAIS) received a major "face lift", returning the system to near 100% of design capability. Installation of the new Dolphin Monitoring System (DMS), provided the capability to assimilate and display vital ship control and navigation information at critical watch stations, dramatically increasing ship's safety and operational flexibility.

3. DOLPHIN was awarded the Fiscal Year 1991 Medical "M", Engineering "E", Supply "E", Communication "C", and it's 2nd consecutive COMSUBPAC Battle Efficiency "E" Award.